Amendments to the Specification:

Please replace paragraph appearing at page 1, lines 13-21 with the following amended paragraph:

1. Field of the Invention

The present invention relates to a method of calculating correction data for correcting a display characteristic, program for calculating correction data for a display characteristic and apparatus for calculating correction data for correcting a display characteristic for calculating correction data for a display characteristic of an image display device based on capture data of a test pattern.

Please replace paragraph appearing at page 1, lines 22-23, bridging to page 2, at lines 1-6 with the following amended paragraph:

2. Description of the Related Art

While some image display device may include one video device only, some other image display devices may be known as including a combination of multiple video devices. In a more specific example, a projection system is known in which multiple projectors are used so that a partial image can be projected from each of the projectors and one large image can be thus constructed on one screen.

Please replace paragraph appearing at page 3, lines 23-25, bridging to page 4, at lines 1-7 with the following amended paragraph:

However, the entire display area of the image display device may not be captured in actual use. For example, when an image display device is provided on a stage, for example, a microphone, a stage setting and so on may be positioned between the image display device and a capturing device provided for performing display correction on the image display device. Alternatively, because of the limited space, a capturing device may not be disposed [[in]] at a distance that allows the entire display area of the image display device [[can]] to fit within the screen of the capturing device.

Please replace paragraph appearing at page 4, lines 8-14 with the following amended paragraph:

Furthermore, at least a part of capture image data may not hold a proper display characteristic though the entire image display area can be captured. For example, some projection type image display device having a frame within the plane of the screen may not capture an accurate display characteristic due to an influence from a small shadow occurring near the frame.

Please replace paragraph appearing at page 4, lines 15-25, bridging to page 5, at line 1 with the following amended paragraph:

The present invention is made in view of this circumstance, and it is an object of the invention to provide a method of calculating a correction data for correcting a

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display characteristic, a program for calculating correction data for correcting a display characteristic and apparatus for calculating correction data for correcting a display characteristic, which can display a high quality image because correction data for correcting a display characteristic relating to the entire image can be calculated even when capture data resulting from capturing of a test data does not normally constitute the entire image relating to the test pattern data.

Please replace paragraph appearing at page 5, lines 3-18 with the following amended paragraph:

A method of calculating correction data for correcting a display characteristic according to a first invention is a method including the steps of displaying a test pattern on an image display device based on test pattern data, obtaining capture data by capturing the test pattern, and calculating correction data for correcting a display characteristic of the image display device based on the obtained capture data, wherein, when the obtained capture data does not normally constitute an entire image relating to the test pattern data, correction data relating to an entire image relating to the test pattern data including correction data of an area to be complemented is calculated by setting the area to be complemented so as to include the not-normally-constituting area and complementing the area to be complemented based on the area excluding the area to be complemented.

Please replace paragraph appearing at page 5, lines 19-24 with the following amended paragraph:

A method of calculating correction data for correcting a display characteristic according to a second invention is the method of calculating correction data for correcting a display characteristic according to the first invention, wherein the test pattern data is generated before the test pattern is displayed on the image display device.

Please replace paragraph appearing at page 6, lines 1-8 with the following amended paragraph:

A method of calculating correction data for correcting a display characteristic according to a third invention is ~~the method~~ comprised of calculating correction data for correcting a display characteristic according to the first or second invention, wherein the display characteristic includes at least one of a geometric characteristic, a color characteristic, a luminance characteristic, a white balance characteristic and a gamma characteristic.

Please replace paragraph appearing at page 6, lines 9-20 with the following amended paragraph:

A method of calculating correction data for correcting a display characteristic according to a fourth invention is the method of calculating correction data for correcting a display characteristic according to the first to third inventions, wherein the calculation of correction data of the area to be complemented is performed by

obtaining capture data relating to the entire image relating to the test pattern data by complementing capture data of the area to be complemented based on capture data of the area excluding the area to be complemented, and calculating correction data relating to the entire image relating to the test pattern data based on the obtained capture data.

Please replace paragraph appearing at page 6, lines 21-25, bridging to page 7, at lines 1-6 with the following amended paragraph:

A method of calculating correction data for correcting a display characteristic according to a fifth invention is the method of calculating correction data for correcting a display characteristic according to the first to third inventions, wherein the calculation of correction data of the area to be complemented is performed by calculating correction data of the area excluding the area to be complemented based on the capture data of the area excluding the area to be complemented, and complementing correction data of the area to be complemented based on the calculated correction data of the area excluding the area to be complemented.

Please replace paragraph appearing at page 7, lines 7-17 with the following amended paragraph:

A method of calculating correction data for correcting a display characteristic according to a sixth invention is the method of calculating correction data for correcting a display characteristic according to the first to third inventions, wherein the calculation of correction data of the area to be complemented is performed by calculating correction data of the entire area of the image relating to the capture

data based on the capture data, and complementing correction data of the area to be complemented based on the correction data of the area excluding the area to be complemented in the calculated correction data.

Please replace paragraph appearing at page 7, lines 18-25 with the following amended paragraph:

A method of calculating correction data for correcting a display characteristic according to a seventh invention is the method of calculating correction data for correcting a display characteristic according to the first to sixth inventions, wherein an image relating to the capture data is displayed before the area to be complemented is set, and the area to be complemented is set in accordance with a manual operation with respect to the displayed image.

Please replace paragraph appearing at page 8, lines 1-9 with the following amended paragraph:

A method of calculating correction data for correcting a display characteristic according to an eighth invention is the method of calculating correction data for correcting a display characteristic according to the first to sixth inventions, wherein, based on a result of recognition of an area that does not normally constitute the image relating to the test pattern data, the recognition being made by analyzing the capture data, the area to be complemented is automatically set so as to include the recognized area.

Please replace paragraph appearing at page 8, lines 10-16 with the following amended paragraph:

A method of calculating correction data for correcting a display characteristic according to a ninth invention is the method of calculating correction data for correcting a display characteristic according to the eighth invention, wherein the analysis of capture data is performed by comparing multiple capture data corresponding to multiple test pattern data.

Please replace paragraph appearing at page 8, lines 17-25, bridging to page 9, at line 1 with the following amended paragraph:

A method of calculating correction data for correcting a display characteristic according to a tenth invention is the method of calculating correction data for correcting a display characteristic according to the sixth invention, wherein, the area to be complemented is automatically set so as to constitute the area based on a result of recognition of an area that does not normally constitute the image relating to the test pattern data, the recognition being made by analyzing correction data of the entire area of the image relating to the capture data.

Please replace paragraph appearing at page 9, lines 2-9 with the following amended paragraph:

A method of calculating correction data for correcting a display characteristic according to an eleventh invention is the method of calculating correction data for correcting a display characteristic according to the tenth invention, wherein the

analysis of capture data is performed by comparing correction data of the entire area of the images relating to multiple capture data corresponding to multiple test pattern data.

Please replace paragraph appearing at page 9, lines 10-20 with the following amended paragraph:

A method of calculating correction data for correcting a display characteristic according to a twelfth invention is the method of calculating correction data for correcting a display characteristic according to the first to sixth inventions, wherein an obstacle is detected by using an obstacle detecting device before the area to be complemented is set, and, the area to be complemented is automatically set so as to constitute the area based on a result of recognition of an image area corresponding to the detected obstacle as an area that does not normally constitute the image relating to the test pattern data.

Please replace paragraph appearing at page 9, lines 21-25, bridging to page 10, at lines 1-2 with the following amended paragraph:

A method of calculating correction data for correcting a display characteristic according to a thirteenth invention is the method of calculating correction data for correcting a display characteristic according to the first invention, wherein data of the area to be complemented is complemented by copying data of the area excluding the area to be complemented.

Please replace paragraph appearing at page 10, lines 3-10 with the following amended paragraph:

A method of calculating correction data for correcting a̲ display characteristic according to a fourteenth invention is the method of calculating correction data for correcting a̲ display characteristic according to the first invention, wherein the complementing of the data of the area to be complemented is calculated from the data of the area excluding the area to be complemented based on a predetermined correlation.

Please replace paragraph appearing at page 10, lines 11-18 with the following amended paragraph:

A method of calculating correction data for correcting a̲ display characteristic according to a fifteenth invention is the method of calculating correction data for correcting a̲ display characteristic according to the fourteenth invention, wherein the predetermined correlation is a distance between the position of a part to be complemented in the area to be complemented and the position at which complementing data exists in the area excluding the area to be complemented.

Please replace paragraph appearing at page 10, lines 19-25 with the following amended paragraph:

A method of calculating correction data for correcting a̲ display characteristic according to a sixteenth invention is the method of calculating correction data for correcting a̲ display characteristic according to the first invention, wherein the

image display device is a projection device including a projector for projecting an image and a screen for displaying the image projected by the projector.

Please replace paragraph appearing at page 11, lines 1-12 with the following amended paragraph:

A method of calculating correction data for correcting a display characteristic according to a seventeenth invention is the method of calculating correction data for correcting a display characteristic according to the first invention, wherein the image display device is a multi-projection device having multiple projectors each for projecting a partial image and a screen for displaying images projected by the multiple projectors and constructing one image as a whole by arranging partial images projected by the projectors on the screen in such a manner that the images are superimposed one over another at the edges of adjacent partial images.

Please replace paragraph appearing at page 11, lines 13-25, bridging to page 12, at lines 1-3 with the following amended paragraph:

A program for calculating correction data for correcting a display characteristic according to an eighteenth invention is a program causing a computer to display a test pattern on an image display device based on test pattern data, obtain capture data by capturing the test pattern, and calculate correction data for correcting a display characteristic of the image display device based on the obtained capture data, wherein, when the obtained capture data does not normally constitute an entire image relating to the test pattern data, correction data relating to an entire image relating to the test pattern data including correction data of an area to

be complemented is calculated by setting the area to be complemented so as to include the not-normally-constituting area and complementing the area to be complemented based on the area excluding the area to be complemented.

Please replace paragraph appearing at page 12, lines 4-19 with the following amended paragraph:

An apparatus for calculating correction data for correcting a display characteristic according to a nineteenth invention is an apparatus including a capturing device for capturing a test pattern displayed on an image display device based on test pattern data and obtaining capture data, and a calculating device for calculating correction data for correcting a display characteristic of the image display device based on the obtained capture data, wherein, when the obtained capture data does not normally constitute an entire image relating to the test pattern data, correction data relating to an entire image relating to the test pattern data including correction data of an area to be complemented is calculated by setting the area to be complemented so as to constitute the not-normally-constituting area and complementing the area to be complemented based on the area excluding the area to be complemented.

Please replace paragraph appearing at page 14, lines 1-3 with the following amended paragraph:

Fig. 10 is a diagram showing an example of a status of an area to be complemented in correction data for correcting a display characteristic according to the embodiment;

Please replace paragraph appearing at page 14, lines 4-8 with the following amended paragraph:

Fig. 11 is a diagram showing how correction data for correcting a display characteristic of the area to be complemented is complemented by using correction data for correcting a display characteristic of the area excluding the area to be complemented according to the embodiment;

Please replace paragraph appearing at page 15, lines 22-24, bridging to page 16, at lines 1-10 with the following amended paragraph:

A multi-projection system serving as an image display device includes multiple projectors 1, an image processor 2, and a screen 5. The multiple projectors 1 may include multiple LCD projectors or multiple DLP projectors. The image processor 2 creates and outputs a partial image to be projected by each of the projectors 1 based on still image data and moving image data supplied from a recording medium or a communication circuit, for example. Partial images from the projectors 1 are projected onto the screen 5. One image is constructed as a whole by displaying and arranging adjacent partial images projected on the screen 5 by the projectors 1 in such a manner that the images are superimposed one over another at [[the]] their adjacent edges.

Please replace paragraph appearing at page 16, lines 14-22 with the following amended paragraph:

Accordingly, such a display characteristic must be corrected when the multi-projection system is manufactured or set up or when maintenance is performed thereon after the set-up. A device for calculating correction data for correcting a display characteristic in the display characteristic correction system therefore includes a digital camera 4 serving as a capturing device, an obstacle sensor 7 serving as an obstacle detecting device and a computer 3 serving as a computing device.

Please replace paragraph appearing at page 17, lines 10-20 with the following amended paragraph:

Here, an obstacle 6 exists between the digital camera 4 and the screen 5, for example. The obstacle 6 in this case refers to a factor that exists between the digital camera 4 serving as the capturing device and the screen 5 serving as the display area of the image display device and causes at least a part of information on a test pattern to be omitted from the capture image of the test pattern displayed on the screen 5 which is captured by the digital camera 4. The obstacle sensor 7 is used as one device for detecting the obstacle 6. The obstacle sensor 7 may use various elements such as the [[ones]] types using ultrasonic waves or laser light beams.

Please replace paragraph appearing at page 17, line 25, bridging to page 18, at lines 1-3 with the following amended paragraph:

Not only the obstacle 6 but also other various factors may prevent [[from]] obtaining normal capture data [[on]] of the entire image relating to a test pattern. Examples of the other various factors will be described later.

Please replace paragraph appearing at page 18, lines 20-25, bridging to page 19, at lines 1-2 with the following amended paragraph:

In the example shown in Fig. 1, the computer 3 includes, [[like]] for example, a general personal computer (PC), a body 3a containing a CPU, a memory and a hard disk, for example, a monitor 3b connected to the body 3a for displaying an image output from the body 3a, a mouse 3c connected to the body 3a for pointing and/or selecting a position displayed within the screen of the monitor 3b and a keyboard 3d connected to the body 3a for inputting text data, for example.

Please replace paragraph appearing at page 19, lines 3-7 with the following amended paragraph:

Thus, correction data calculated by the computer 3 is set in the image processor 2 so that the multi-projection system can display high quality, corrected image images even when the digital camera 4, obstacle sensor 7 and computer 3 are removed from the multi-projection system thereafter.

Please replace paragraph appearing at page 19, lines 11-25, bridging to page 20, at lines 1-25 which bridges to page 21, at lines 1-2 with the following amended paragraph:

The display characteristic correction system, as shown in Fig. 2, includes a control portion 11, a test pattern generating portion 12, an image display portion 13, a test pattern capturing portion 14, an area-to-be-complemented manual setting portion 15, an area-to-be-complemented automatic detecting portion 16, a capture data complementing portion 17, an image correction data calculating portion 18, an image correction data complementing portion 19, and an image correcting portion 20. The control portion 11 controls the entire system. The test pattern generating portion 12 generates test pattern data for obtaining correction data for correcting a display characteristic (image correction data). The image display portion 13 provides a display based on test pattern data generated by the test pattern generating portion 12. The test pattern capturing portion 14 captures a test pattern displayed on the image display portion 13 and outputs capture data. The area-to-be-complemented manual setting portion 15 is used for manually setting an area, which does not normally display a test pattern in the capture data, as an area to be complemented. The area-to-be-complemented automatic detecting portion 16 is used for automatically detecting an area, which does not normally display a test pattern in the capture data, as an area to be complemented. The capture data complementing portion 17 complements capture data of an area to be complemented set by the area-to-be-complemented manual setting portion 15 or the area-to-be-complemented automatic detecting portion 16 based on capture data of the area excluding the area to be complemented. The image correction data calculating portion 18 calculates image correction data based on a part or whole of the capture

data. The image correction data complementing portion 19 complements image correction data when image correction data calculated by the image correction data calculating portion 18 does not relate to the entire original test data or when image correction data is calculated based on capture data including a part where a test pattern is not normally displayed. The image correcting portion 20 corrects image data to be displayed on the image display portion 13 based on correction data generated by the image correction data calculating portion 18 or the image correction data complementing portion 19.

Please replace paragraph appearing at page 22, lines 20-24 with the following amended paragraph:

When the configuration as above functions as a display characteristic correcting system of the multi-projection system, a program for calculating correction data for correcting a̲ display characteristic is executed on the operating system of the computer 3.

Please replace paragraph appearing at page 23, lines 13-20 with the following amended paragraph:

The test pattern data generated by the test pattern generating ~~potion~~ portion 12 is transmitted to the image display portion 13 and is displayed as a test pattern (step S2). More specifically, the test pattern data is converted to partial image data corresponding to each of the projectors 1 by the image processor 2, and the projectors 1 project the partial image data so that the test pattern is displayed on the screen 5.

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Please replace paragraph appearing at page 24, lines 2-11 with the following amended paragraph:

In response to the receipt of the capture data, the program for calculating correction data for correcting a display characteristic executed in the computer 3 determines whether an area to be complemented is to be set manually or automatically (step S4). The determination is based on whether the check mark on the operation screen displayed by the correction data for correcting a display characteristic calculating program is given to the check box for automatic setting or check box for manual setting of the area to be complemented.

Please replace paragraph appearing at page 26, lines 14-25, bridging to page 27, at lines 1-13 with the following amended paragraph:

Furthermore, when projecting a test pattern on the screen 5 by the projectors 1 results in a too wide luminous flux (too large angle of projection view), the entire area of an image relating to the test pattern data may not be displayed on the screen 5 (that is, the image is larger than the display area of the screen 5). In this case, the capture data resulting from capturing of the display area of the screen 5 does not constitute the entire area of the image relating to the test pattern. Calculation of correction data for correcting a display characteristic based on the capture data does not result in the correction data for correcting a display characteristic relating to the entire area of the image relating to the test pattern. On the other hand, by adjusting the display characteristic including the angle of projection view later, the projection can be performed with the proper angle of view.

Thus, correction data for correcting a display characteristic for all [[of]] image data to be displayed is required as the correction data for correcting a display characteristic. Therefore, the part not displayed on the screen 5 in the entire area of the image relating to the test pattern is set as an area to be complemented, and [[a]] correction data for correcting a display characteristic of the area to be complemented must be calculated in the same manner as those for other areas to be complemented.

Please replace paragraph appearing at page 27, lines 20-25, bridging to page 28, at lines 1-9 with the following amended paragraph:

Correction data for correcting a display characteristic is calculated by performing complementing processing on the area to be complemented set by step S6 or S7 mainly in the following two methods. One method is the one for calculating capture data of an area to be complemented by complementing, calculating capture data relating to the entire area, and calculating the correction data for correcting a display characteristic of the entire area. The other method is the one for calculating correction data for correcting a display characteristic of an area excluding an area to be complemented and calculating correction data for correcting a display characteristic of the area to be complemented from the correction data for correcting a display characteristic of the area excluding the area to be complemented.

Please replace paragraph appearing at page 28, lines 10-18 with the following amended paragraph:

Therefore, whether the subject to be complemented is a capture image (that is, capture data) or not is determined (step S8). The determination is also based on whether the check mark on the operation screen displayed by the correction data for correcting a display characteristic calculating program is given to the checkbox for selecting capture image or the check box for selecting the correction data for correcting a display characteristic as the subject to be complemented.

Please replace paragraph appearing at page 28, lines 23-25, bridging to page 29, at line 1 with the following amended paragraph:

Then, the correction data for correcting a display characteristic of the entire area is calculated based on the calculated capture data of the entire area (step S10), and the processing ends.

Please replace paragraph appearing at page 29, lines 2-6 with the following amended paragraph:

On the other hand, if the subject to be complemented is not a capture image in step S8, whether the correction data for correcting a display characteristic is to be calculated based on all of capture data including the one for the area to be complemented or not is determined (step S11).

Please replace paragraph appearing at page 29, lines 7-10 with the following amended paragraph:

Here, if all of the capture data is not used, the correction data for correcting a display characteristic is calculated based on the part excluding the area to be complemented within the capture data (step S12).

Please replace paragraph appearing at page 29, lines 11-17 with the following amended paragraph:

If all of capture data is used in step S11, the correction data for correcting a display characteristic is calculated based on all of the capture data (step S13). The correction data for correcting a display characteristic can be calculated not only with the area excluding the area to be complemented but also with all capture data not in consideration of the area to be complemented.

Please replace paragraph appearing at page 29, lines 18-24 with the following amended paragraph:

The area to be complemented for which the correction data for correcting a display characteristic relating to normal capture data has not been obtained is complemented based on the correction data for correcting a display characteristic obtained in step S12 or S13 to obtain the correction data for correcting a display characteristic (step S14), and the processing ends.

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Please replace paragraph appearing at page 29, line 25, bridging to page 30, at lines 1-9 with the following amended paragraph:

If the automatic detection of the area to be complemented is set in step S4, actual detecting processing is performed based on capture data in step S7. However, the invention is not limited thereto. After the correction data for correcting a display characteristic relating to all capture data is calculated without the setting of the area to be complemented (that is, in consideration of the obstacle 6) in step S13, the area to be complemented can be automatically detected based on the calculated correction data for correcting a display characteristic.

Please replace paragraph appearing at page 30, lines 10-23 with the following amended paragraph:

In other words, like the example, in order to correct a luminance characteristic serving as a display characteristic, when test pattern data generated at a high luminosity has an obstacle, the part where an obstacle exists has relatively a lower luminosity. When the correction data for correcting a display characteristic is generated by using the capture data, correction data for largely increasing the luminance of the part at the lower luminosity compared with the other part is generated. Therefore, the correction data is analyzed, and the data part beyond a threshold value is determined as a part having an obstacle. Then, the area to be complemented may be set so as to include the part. In this way, the area to be complemented does not necessarily have to be set based on capture data.

Please replace paragraph appearing at page 30, lines 24-25, bridging to page 31, at lines 1-4 with the following amended paragraph:

An area to be complemented may be arbitrarily set by an operator. Furthermore, a processing flow from the determination of an obstacle to the final calculation of correction data for correcting a display characteristic can be performed automatically without requiring the setting of an area to be complemented by an operator.

Please replace paragraph appearing at page 31, lines 5-9 with the following amended paragraph:

As described above, the data part to be used for electronic image correction among correction data for correcting a display characteristic calculated by the computer 3 is transmitted to the image processor 2, and image data to be displayed is corrected in the image processor 2.

Please replace paragraph appearing at page 31, lines 10-22 with the following amended paragraph:

A part, which is requiring a manual adjustment operation, of correction data for correcting a display characteristic calculated by the computer 3 is displayed as an item to adjust, for example, on the monitor 3b of the computer 3 and is adjusted by an operator or a user. The manual adjustment operation may be the adjustment of the projection angle of view when the projection optical system of the projector 1 has not an electronic zoom function or adjustment in the projecting direction of each

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projector, for example. Apparently, the adjustment may be configured to perform electronically, but manual adjustment may be effectively performed on some parts in consideration of the costs and weight, for example, of the entire system.

Please replace paragraph appearing at page 31, lines 23-25, bridging to page 32, at lines 1-14 with the following amended paragraph:

Under the configuration shown in Fig. 2, test pattern data generated by the test pattern generating portion 12 can be output to the image display portion 13 directly or may be through the image correcting portion 20. In the latter case, first test pattern data is output to the image display portion 13 without any correction by the image correcting portion 20, and the correction data for correcting a display characteristic calculated by the test pattern is set in the image correction portion 20. Then, second test pattern data (which may be the same as the first test pattern data, for example) is corrected by the image correcting portion 20 and is then displayed on the image display portion 13, and the correction data for correcting a display characteristic is calculated again from the capture data. Thus, the accuracy can be increased. In this way, in order to increase the accuracy for correcting a display characteristic, recursive adjustment can be performed.

Please replace paragraph appearing at page 34, lines 8-19 with the following amended paragraph:

Notably, the image part 6a of the obstacle 6 is automatically detected for improved accuracy by displaying two test patterns at high and low luminosities and comparing the test patterns (to obtain a difference between both capture data, for

example) here. However, when a difference in luminance from that of the obstacle 6 is known, the automatic detection can be performed with one test pattern, which can reduce the processing time. More specifically, as described above, a test pattern at a high luminosity may be displayed, and the part having a luminance equal to or lower than a predetermined luminance in capture data can be estimated as ~~to be~~ the obstacle 6.

Please replace paragraph appearing at page 34, lines 20-25, bridging to page 35, at lines 1-12 with the following amended paragraph:

Furthermore, the invention is not limited to the differentiation of luminance of displayed test patterns, but the obstacle 6 can be detected by differentiating color of displayed test patterns or by displaying a test pattern in a specific texture. In addition, since the obstacle 6 is positioned ~~on a~~ to a closer side to the digital camera 4 than the screen 5, the obstacle 6 may be automatically detected by performing distance detection applying AF technology or the obstacle 6 may be automatically detected by using a so-called image recognition technology. Especially, when the shape of an obstacle in a capture image is roughly known in advance, one technology suitable for detecting the shape of the obstacle may be selected from generally known image shape technologies such as pattern matching, and the selected one may be used for detecting the area that the obstacle occupies. Apparently, obstacle detection with higher accuracy may be performed by using a combination of those technologies.

Please replace paragraph appearing at page 37, lines 9-18 with the following amended paragraph:

The capture data complementing processing may be performed in units of pixels included in an image, but the processing does not necessarily have to be performed with detailed accuracy such as in units of pixels since the complementing processing to be performed here is processing for calculating correction data for correcting a display characteristic. Accordingly, complementing processing may be performed in units of a block which includes multiple pixels, for example. In this case, the processing time can be reduced largely.

Please replace paragraph appearing at page 37, lines 19-22 with the following amended paragraph:

Furthermore, while the case that capture data is complemented is described above, the same complementing method can be applied for complementing correction data for correcting a display characteristic.

Please replace paragraph appearing at page 37, lines 23-25, bridging to page 38, at lines 1-9 with the following amended paragraph:

Next, an example of a correction data for correcting a display characteristic complementing method will be described with reference to Figs. 10 and 11. Fig. 10 is a diagram showing an example of a status of an area to be complemented in the correction data for correcting a display characteristic. Fig. 11 is a diagram showing how correction data for correcting a display characteristic of the area to be

complemented is complemented by using correction data for correcting a display characteristic of the area excluding the area to be complemented. The correction data for correcting a display characteristic complementing processing is performed in step S14 shown in Fig. 3.

Please replace paragraph appearing at page 38, lines 10-15 with the following amended paragraph:

Calculating correction data for correcting a display characteristic based on capture data of the other area than an area to be complemented results in correction data for correcting a display characteristic for the area excluding the area to be complemented. This is as shown in Fig. 10 here, for example.

Please replace paragraph appearing at page 38, lines 16-25, bridging to page 39, at lines 1-6 with the following amended paragraph:

In the example shown in Fig. 10, correction data for correcting a display characteristic is calculated in units of block which includes a predetermined number of pixels included in an image. A long and narrow area to be complemented 6e exists at the left end of the correction-data-for-correcting-display-characteristic 41. An L-shaped area to be complemented 6d exists in the middle part but on the slightly on the right side of the correction-data-for-correcting-display-characteristic 41. Notably, actual correction data for correcting a display characteristic is a set of correction data for correcting a display characteristic corresponding to the positions (that is, block positions or pixel positions where one pixel is one block), and it does

not mean that two dimensional image data are displayed. However, Figs. 10 and 11 show visual illustrations of image data at the identical positions.

Please replace paragraph appearing at page 39, lines 7-14 with the following amended paragraph:

Correction data for correcting a display characteristic relating to the areas to be complemented 6d and 6e are complemented based on the correction data for correcting a display characteristic before complementation. The processing for complementing the correction data for correcting a display characteristic of the area to be complemented 6d thereof will be described here with reference to Fig. 11.

Please replace paragraph appearing at page 39, lines 15-20 with the following amended paragraph:

In the correction data for correcting a display characteristic complementing processing, a block including at least a part of a the area to be complemented 6d is complemented by, for example, copying correction data for correcting a display characteristic of a block close to the focus block.

Please replace paragraph appearing at page 39, lines 21-25, bridging to page 40, at line 1 with the following amended paragraph:

More specifically, the correction data for correcting a display characteristic of a block 42 completely included in the area to be complemented 6d is complemented

by copying the correction data for correcting <u>a</u> display characteristic of a block 43 closest to the block 42 on the area excluding the area to be complemented 6d.

Please replace paragraph appearing at page 40, lines 2-7 with the following amended paragraph:

Furthermore, the correction data for correcting <u>a</u> display characteristic of the block 45 partially included in the area to be complemented 6d is complemented by copying the correction data for correcting <u>a</u> display characteristic of the block 46 closest to the block 45 on the area excluding the area to be complemented 6d.

Please replace paragraph appearing at page 40, lines 8-17 with the following amended paragraph:

The correction data for correcting <u>a</u> display characteristic of the block 44 partially included in the area to be complemented 6d may be complemented by using the correction data for correcting <u>a</u> display characteristic of the block adjacent to the block 44 on the right, because which is the closest in the area excluding the area to be complemented 6d. However, for simple processing, the correction data for correcting <u>a</u> display characteristic of the block 46 may be copied to the block 45 and, at the same time, to the block 44.

Please replace paragraph appearing at page 40, lines 18-25, bridging to page 41, at lines 1-4 with the following amended paragraph:

When complementing processing is performed by copying, for example, by copying each block from the top to the bottom of an image, the same data aligns vertically, resulting in a vertical stripe pattern. Therefore, in this case, filtering processing may be performed so as to blur complemented data (complemented capture data or complemented correction data for correcting a display characteristic).

Please replace paragraph appearing at page 41, lines 5-15 with the following amended paragraph:

While the correction data for correcting a display characteristic of the area excluding the area to be complemented 6d, which is close to the area to be complemented 6d, is copied to complement the correction data for correcting a display characteristic of the area to be complemented 6d, the invention is not limited thereto. The complementing processing may be of course performed by weighting correction data for correcting a display characteristic of multiple blocks in accordance with a correlation with respect to a distance and a pattern between a block to be complemented and a complementing block.

Please replace paragraph appearing at page 41, lines 16-19 with the following amended paragraph:

The processing of complementing correction data for correcting a display characteristic by copying as described above is processing suitable when the display characteristic is a color characteristic, for example.

Please replace paragraph appearing at page 41, lines 20-25 with the following amended paragraph:

Next, Fig. 12 is a diagram for explaining a complementing method with weighting. The complementing method with weighting as shown in Fig. 12 may be applied to the processing of complementing capture data or may be applied to processing of complementing correction data for correcting a display characteristic.

Please replace paragraph appearing at page 42, lines 1-9 with the following amended paragraph:

An example will be described in which when data (capture data or correction data for correcting a display characteristic) within an area to be complemented is complemented based on data of the area excluding the area to be complemented, it is done more naturally by taking into consideration of a correlation instead of copying only. In the example shown in Fig. 12, data of a focus block (or focus pixel) is calculated by weighting with a correlation of distance to data of a block (or pixel) in vicinities.

Please replace paragraph appearing at page 43, lines 6-8 with the following amended paragraph:

The calculation method described here may be applied to both cases that the data is capture data and that the data is correction data for correcting a display characteristic.

Please replace paragraph appearing at page 44, lines 5-10 with the following amended paragraph:

The capture data complementing portion 17 calculates coordinate information of the omitted marker 62 (more specifically, coordinate information of the point of the intersection of the cross shape of the marker) based on the ~~other part~~ part other than the area to be complemented 6g of the capture data 61.

Please replace paragraph appearing at page 48, lines 22-24 with the following amended paragraph:

While four points are input to set a rectangular area, a triangular or polygonal area may be set by increasing or decreasing the number of points shown in Fig. 17.

Please replace paragraph appearing at page 51, lines 2-12 with the following amended paragraph:

As described above, there are cases that the entire area of an image displayed on the display area 5a of the image display device cannot be captured in addition to

the case that a tangible obstacle exists between the capturing device 4 and the display area 5a of the image display device. As shown in Fig. 20, the capturing device 4 may be placed at a fixed position (when the capturing device 4 cannot be separated far enough from the image display device inside of a house, for example), and the entire display area 5a of the image display device cannot be captured within the capturing range 4a.

Please replace paragraph appearing at page 52, lines 3-9 with the following amended paragraph:

Even in the cases as shown in Figs. 20 and 21, the correction data for correcting a display characteristic for the entire area of the image relating to test pattern data can be calculated by setting the part not captured by a capturing device (or the part with a margin) as the area to be complemented and performing the complementing processing thereon in the same manner.

Please replace paragraph appearing at page 54, lines 1-6 with the following amended paragraph:

While the projector 1 and the screen 5 serving as a projection type image display device are used as the image display portion as described in the above, the invention is not limited thereto. For example, the invention can be similarly applied to an image display portion having a plasma display or a liquid crystal display.

Please replace paragraph appearing at page 54, lines 12-17 with the following

amended paragraph:

According to this embodiment, correction data for correcting a display characteristic relating to the entire image can be calculated even when capture data resulting from capturing of a test pattern does not normally constitute the entire image relating to the test pattern data.

Please replace paragraph appearing at page 54, lines 18-25, bridging to page 55, at line 1 with the following amended paragraph:

Therefore, correction data for correcting a display characteristic relating to the entire image can be calculated and a high quality image can be displayed without the removal of factors such as the presence of an obstacle between a capturing device and an image display device, the presence of the display area of an image display device which is lying off the capturing range of a capturing device and the presence of a structure such as a frame within the display area of an image display device.

Please replace paragraph appearing at page 55, lines 2-5 with the following amended paragraph:

Furthermore, the processing time can be reduced when correction data for correcting a display characteristic is calculated with an area excluding an area to be complemented since the data to be processed is reduced.

Please replace paragraph appearing at page 55, lines 6-20 with the following amended paragraph:

On the other hand, when the calculation of correction data for correcting a display characteristic is performed on all ~~capture~~ captured data without consideration of an area to be complemented and then the complementing processing is performed by invalidating the correction data for correcting a display characteristic of the area to be complemented, accurate correction data for correcting a display characteristic can be calculated only by adding a complementing portion as an add-on type processing module or a processor. This is because the processing up to the calculation of the correction data for correcting a display characteristic can be performed directly by using conventional software or ~~device~~ devices, for example. Thus, developed software or device can be effectively used, and the development costs can be reduced.